

CLAIMS

1. A semiconductor component (30) having a silicon-bearing layer (32) and a praseodymium oxide layer (40), characterized in that arranged between the silicon-bearing layer (32) and the praseodymium oxide layer (40) is a mixed oxide layer (34) containing silicon, praseodymium and oxygen, which is of a layer thickness of less than 5 nanometers.

2. A semiconductor component as set forth in claim 1 wherein the mixed oxide layer (34) is of a layer thickness of a maximum of 3 nanometers.

3. A semiconductor component as set forth in claim 1 wherein the mixed oxide (34) is a pseudo-binary, non-stoichiometric silicate or an alloy of the type $(\text{Pr}_2\text{O}_3)_x(\text{SiO}_2)_{1-x}$.

4. A semiconductor component as set forth in claim 3 wherein x increases between the silicon-bearing layer (32) and the praseodymium oxide layer (40).

5. A semiconductor component as set forth in claim 1 wherein the silicon-bearing layer (32) comprises doped or undoped silicon-germanium.

6. A semiconductor component as set forth in claim 1 wherein the silicon-bearing layer comprises doped or undoped silicon.

7. A semiconductor component 30 as set forth in claim 5 wherein the silicon-germanium layer or the silicon layer has an (001) orientation at the interface to the mixed oxide layer.

8. An MOSFET as set forth in claim 1.

9. A memory cell as set forth in claim 1.

10. A production process for an electronic component with a step of depositing a praseodymium oxide layer (40) on a silicon-bearing layer (32),

5 characterized in that prior to said deposit step a step of depositing a mixed oxide layer (34) containing silicon, praseodymium and oxygen is effected at a substrate temperature of less than 700°C.

11. A process as set forth in claim 10 wherein the steps of depositing a mixed oxide layer (34) and depositing a praseodymium oxide layer (40) are effected in the form of deposition out of the gaseous phase.

10 12. A process as set forth in claim 11 wherein the deposit steps are effected by means of molecular beam deposition.

13. A process as set forth in claim 11 wherein the deposit steps are effected by means of chemical vapor phase deposition.

15 14. A process as set forth in claim 10 wherein the step of depositing the mixed oxide layer (34) is effected in an oxygen-bearing gas atmosphere.

15. A process as set forth in claim 10 wherein the step of depositing the praseodymium oxide layer (40) is effected in an oxygen-bearing gas atmosphere.

20 16. A process as set forth in claim 10 wherein the step of depositing the mixed oxide layer (34) is effected by means of a starting material which contains or consists of praseodymium oxide in the form Pr_6O_{11} .

25 17. A process as set forth in claim 10 wherein the step of depositing the praseodymium oxide layer (40) is effected by means of a starting material containing praseodymium oxide in the form Pr_6O_{11} .

18. A process as set forth in claim 10 wherein the step of depositing the mixed oxide layer (34) is effected at a temperature of a maximum of 680°C.

5 19. A process as set forth in claim 12 wherein the step of depositing the mixed oxide layer (34) is effected at a temperature of between 600°C and 650°C.